**CERRO COPPER & BRASS COMPANY**
Division of **Cerro Corporation**
ST. LOUIS WORKS

A.2
2/28/72

# TRANSMITTAL & RETURN RECEIPT FORM

154003

TO: J. Brennan, Cerrocorp-N. Y.

PLEASE ACKNOWLEDGE RECEIPT OF THE FOLLOWING:

REVISED CAPITAL AND OPERATING COST ESTIMATES FOR CERRO WATER POLLUTION CONTROL EVALUATION

FROM: P. Tandler, Technical Manager
CerroCu-St. Louis Works

DATE SENT: February 28, 1972

## ACKNOWLEDGMENT & REMARKS

C03380

DATE NAME

**CERRO COPPER & BRASS COMPANY**
Division of **Cerro Corporation**
ST. LOUIS WORKS

# TRANSMITTAL & RETURN RECEIPT FORM

TO: W. M. Vose, Engineering Office Mgr.
Cerrocorp-N. Y.

PLEASE ACKNOWLEDGE RECEIPT OF THE FOLLOWING:

REVISED CAPITAL AND OPERATING COST ESTIMATES FOR CERRO WATER POLLUTION CONTROL EVALUATION

FROM: P. Tandler, Technical Mgr.
CerroCu-St. Louis Works

DATE SENT: February 28, 1972

## ACKNOWLEDGMENT & REMARKS

C03379

DATE NAME

**CERRO COPPER & BRASS COMPANY**
Division of **Cerro Corporation**
ST. LOUIS WORKS

# TRANSMITTAL & RETURN RECEIPT FORM

TO: . Chase, Treasurer-Controller
CerroCu-Cleveland
PLEASE ACKNOWLEDGE RECEIPT OF THE FOLLOWING:

REVISED CAPITAL AND OPERATING COST ESTIMATES
FOR CERRO WATER POLLUTION CONTROL EVALUATION

FROM: P. Tandler, Technical Mgr.
CerroCu-St. Louis Works
DATE SENT: February 28, 1972

## ACKNOWLEDGMENT & REMARKS

C03381

DATE NAME

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**CERRO COPPER & BRASS COMPANY**
Division of **Cerro Corporation**
ST. LOUIS WORKS

# TRANSMITTAL & RETURN RECEIPT FORM

TO: Frank Higham, President-CerroCu-Cleveland
PLEASE ACKNOWLEDGE RECEIPT OF THE FOLLOWING:

REVISED CAPITAL AND OPERATING COST ESTIMATES
FOR CERRO WATER POLLUTION CONTROL EVALUATION

FROM: P. Tandler, Technical Mgr.
CerroCu-St. Louis Works
DATE SENT: February 28, 1972

## ACKNOWLEDGMENT & REMARKS

C03382

DATE NAME

# CERRO COPPER PRODUCTS

DIVISION OF CERRO CORPORATION

# INTERNAL MEMORANDUM

Form HQ-10 SHOW NAME, TITLE AND UNIT OF ADDRESSEE AND ADDRESSOR

OTHER ADDRESSEES · FOR INFORMATION
cc: Messrs. F. Higham
J. Chase
C. Brennan
G. W. Vose
J. W. Goldenberg
File: 1104

TO: W. E. Dunnick, Vice President

DATE: February 28, 1972

FROM: P. Tandler, Technical Manager

SUBJECT: REVISED CAPITAL AND OPERATING COST ESTIMATES FOR CERRO WATER POLLUTION CONTROL EVALUATION

At the writer's request, Mr. Jones of Monsanto Enviro-Chem has made several corrections and revisions to the process evaluation and cost estimate report dated February 1, 1972.

These revisions do not change the conclusions reached as to the most economical course to pursue, but tend to further strengthen the previously expressed preference for Case I-B, which in its scope is equivalent to Case 3 from Monsanto Enviro-Chem's reports to the Village dated December 31, 1971 and February 4, 1972, using the chemical process only.

A second choice would be Case II-B, which is equivalent to Case 4 of the Village Report with chemical treatment only. In this case, the use of cooling towers and distribution piping would reduce flow to the treatment plant about 30 percent, but would require additional capital and operating costs internally, for a net increase of $8,000.00 per annum.

PT:vjg

C03383

Monsanto Enviro-Chem Systems Inc.
10 SOUTH RIVERSIDE PLAZA / CHICAGO, ILLINOIS 60606 / (312) 782-5041

February 1, 1972
Revised 2/23/72

Mr. Paul Tandler
Technical Manager
Cerro Copper and Brass Co.
Sauget, Illinois

Dear Mr. Tandler:

As was discussed at our meeting on January 20, and in the subsequent phone conversation of January 24, four alternatives will be considered for treatment of the Cerro waste waters.

In Figure 1 the flow alternatives have been outlined. Inplant treatment for Schemes III and IV will involve neutralization and clarification with a gravity thickener for concentration of the sludge to approximately 3% by weight.

Note Figure 2 for the flow diagram. Storm flows in excess of the normal Cerro treatment plant flows will be bypassed to the sewer because the excess will receive treatment within the Village system.

In Figure 3 the inplant revisions which would be necessary for collection of the water have been noted. A new sewer would be run from the shaft furnace building North to tie in with the sewer along the North side of the main street flowing East.

That same sewer along the North side of the street would be blocked off at the Southwest corner of the Foundry Area Maintenance shops so as to prevent any sanitary wastes from coming in at that point.

The effluent line from the pond would be tied into this same line along the main street. The treatment plant would probably be located in the Northeast section of the Cerro property either to the West or East of Dead Creek.

The effluent from the treatment plant could be conveyed by either a gravity flow sewer or a force main to the Route 3 trunk sewer. This line would convey both the cooling water discharge from Midwest and the treated effluent from the Cerro plant.

The force main cost including pumping station would be approximately $115,000 which would be $30,000 to $40,000 more than a shallow gravity sewer.

In Table 1 the capital costs for alternatives I through IV have been listed with a Case A and a Case B. Case A includes the total Village treatment system and Case B assumes that the activated carbon system is not constructed.

The costs for Alternatives I and II were taken directly from the Village Report, "Capital and Operating Cost Breakouts for the Village of Sauget Waste Water Treatment System - December 31, 1971."

Alternates III and IV include the capital cost for treatment of sanitary wastes and storm water in the Village system as well as the cost for inplant sewer changes, the treatment system and the force main to convey the effluent to the Route 3 trunk sewer.

Capital cost estimates for the reduction in flow for Alternatives II, III and IV must be supplied by Cerro. As an approximation for Cases II, III, and IV, we have included capital figures for cooling towers and a distribution system for the cooling tower water.

In Table 2 the direct and indirect costs have been listed assuming ten years straight line depreciation for the towers and distribution system, and five years depreciation for the Cerro treatment facility.

The capital numbers in Table 1 indicate that if the Village installs the entire system, flow reduction and inplant treatment would be about as costly to Cerro as sending all of their waste to the Village.

If the entire system is not installed or Case B is chosen, inplant flow reduction and treatment would be more costly to Cerro.

The operating cost figures in Table 2 indicate that treatment in the Village system would be cheaper than inplant treatment.

We, therefore, recommend that Cerro discharge their waste water to the Village and that inplant water reductions be investigated in order to accurately determine the possible reductions in capital cost for Cerro's waste treatment.

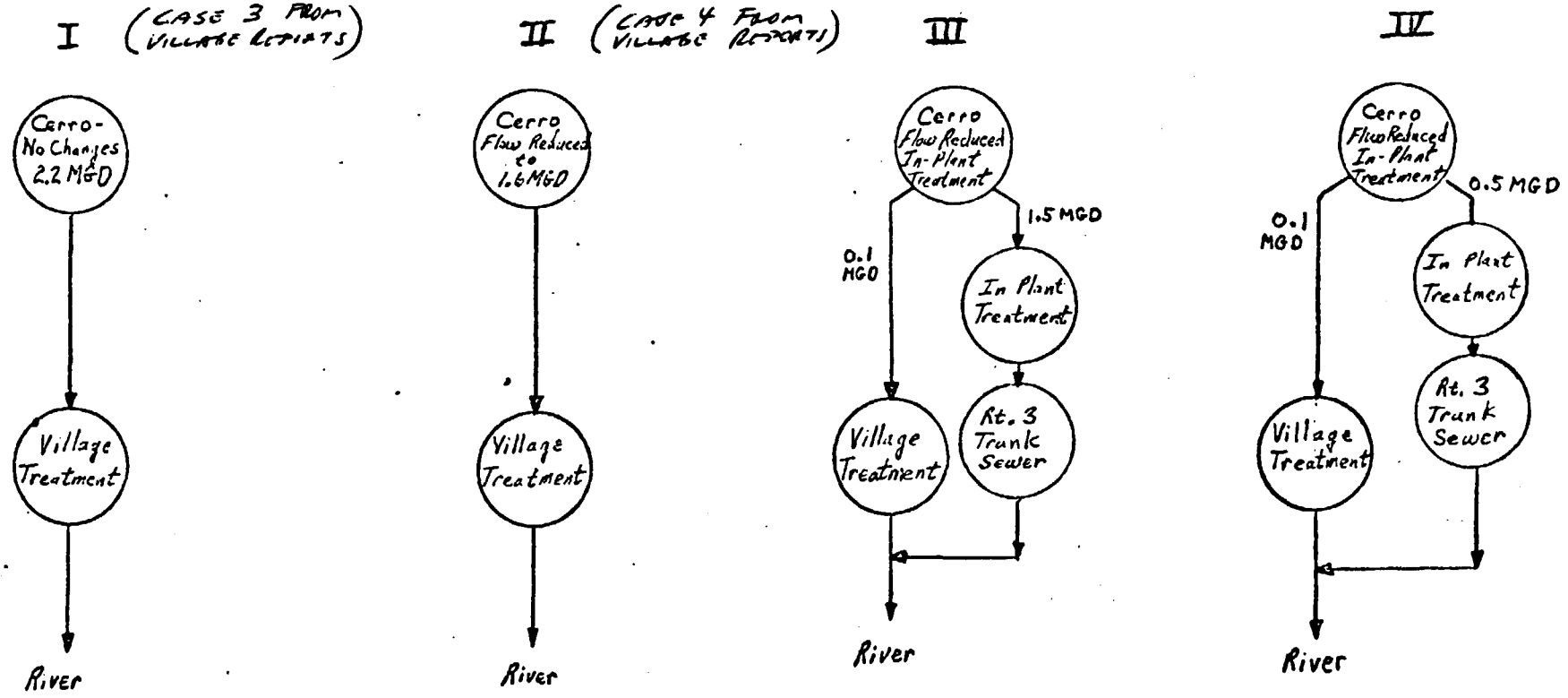
Very truly yours,

J. L. Jones

J. L. Jones
Technical Services Manager

JLJ/smh

# Figure 1




Storm Water to Village System for All Cases

| BID | PRELIM |
|---|---|
| APP | PRELIM |
| FAB | CONST |

ISSUE DATE — STAMPING — M.O.

Monsanto Enviro-Chem Systems Inc

LINE NO: _____ SPEC.: _____

SERVICE: Cerro Copper & Brass Sauget, Illinois

DATE 1/31/74 CONTRACT NO. _____

MADE BY JLJ SKETCH NO. _____

CHECKED BY _____ SHEET _____ OF _____

ENG #

C03387

Figure 2

Monsanto Enviro-Chem Systems Inc

SPECIFICATION FOR

CONTRACT Cerro Copper

SPEC. NO.

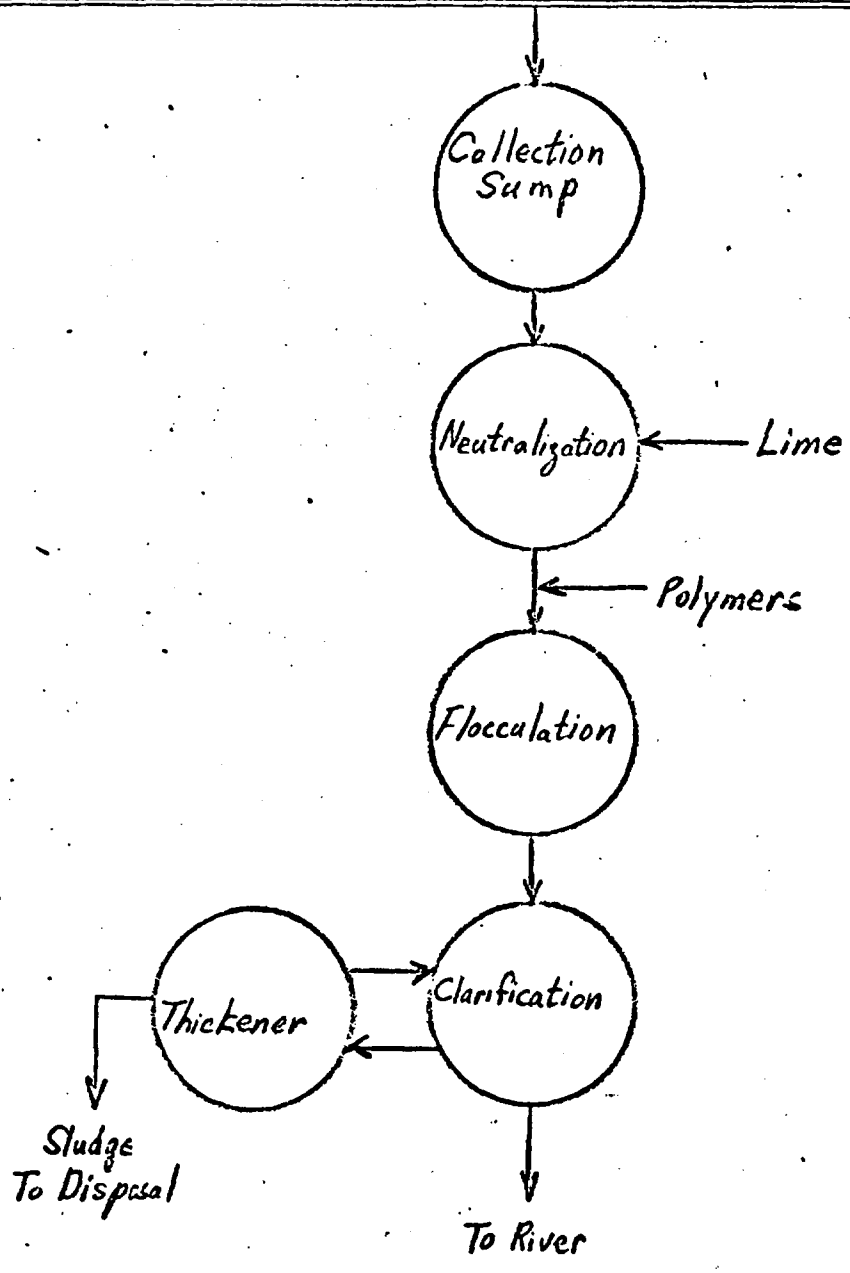
ITEM NO. NO. REQ'D.

SHEET 1 OF 1

| MADE BY | CH'K'D BY | APP'D BY | APP'D BY |
|---|---|---|---|
| DATE 2/1/72 | DATE | DATE | DATE |

BID PRELIM APP PRELIM FAB CONST. M.O. STAMPING

ISSUE DATE

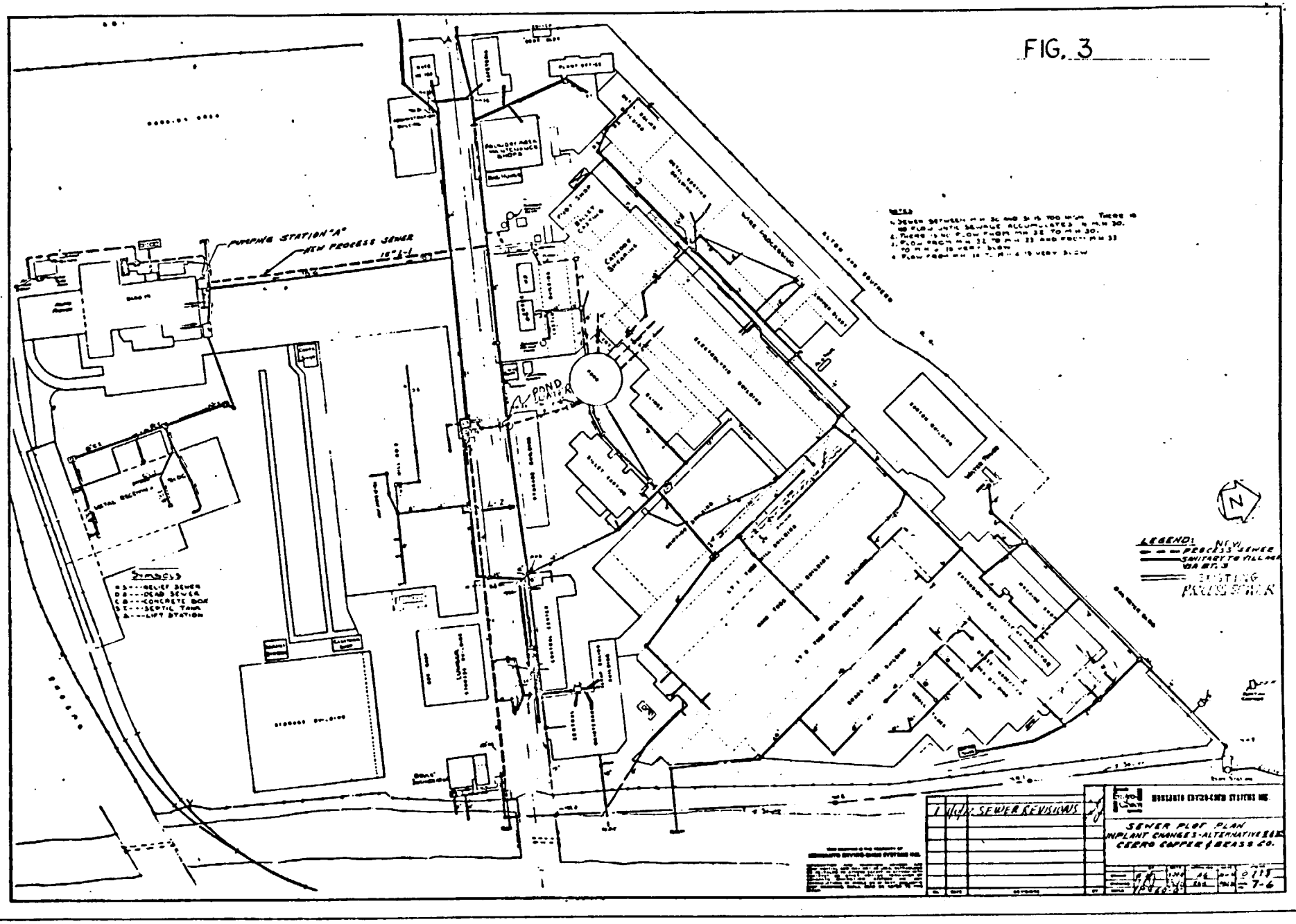



| NO. | DATE | BY | REVISION | NO. | DATE | BY | REVISION |
|---|---|---|---|---|---|---|---|
| | | | | | | | |

ECD 2-017 2/71

C03388

FIG. 3


PUMPING STATION "A"
NEW PROCESS SEWER
POND
LEGEND:
NEW
PROCESS SEWER
EXISTING
PROCESS SEWER
SEWER PLOT PLAN
INPLANT CHANGES-ALTERNATIVE
CERRO COPPER & BRASS CO.

C03389

# TABLE 1

## CERRO COPPER

## CAPITAL COSTS FOR TREATMENT

| ALTERNATIVE | I (Case 3 from Village Reports) | | II (Case 4 from Village Reports) | | III | | IV | |
|---|---|---|---|---|---|---|---|---|
| | A | B | A | B | A | B | A | B |
| Village Plant | 1052 | 578 | 849 | 475 | 87 | 59 | 87 | 59 |
| Inplant Treatment | 0 | 0 | 0 | 0 | 750 | 750 | 375 | 375 |
| Sewer Modifications | 0 | 0 | 0 | 0 | 160 | 160 | 160 | 160 |
| Subtotal | 1052 | 578 | 849 | 475 | 997 | 969 | 622 | 594 |
| Inplant Modifications | 0 | 0 | 200 | 200 | 200 | 200 | 350 | 350 |
| TOTAL | 1052 | 578 | 1049 | 675 | 1197 | 1169 | 972 | 944 |

ALL COSTS EXPRESSED IN THOUSANDS OF DOLLARS

JLJ/smh
2/1/72
Revision 2/23/72

TABLE 2

CERRO COPPER & BRASS CO.
OPERATING COSTS FOR TREATMENT

| Alternative | I (Case 3 From Village Reports) | | II (Case 4 From Village Reports) | | III | | IV | |
|---|---|---|---|---|---|---|---|---|
| Directs | A | B | A | B | A | B | A | B |
| Village | 73,000 | 57,000 | 61,000 | 45,000 | -- | -- | -- | -- |
| Cerro | | | | | | | | |
| Chemicals | 0 | 0 | 1,000 | 1,000 | 17,000 | 17,000 | 13,000 | 13,000 |
| Utilities | 0 | 0 | 3,000 | 3,000 | 6,000 | 6,000 | 4,500 | 4,500 |
| Labor | 0 | 0 | 0 | 0 | 15,000 | 15,000 | 15,000 | 15,000 |
| Mainten. | 0 | 0 | 4,000 | 4,000 | 19,000 | 19,000 | 14,000 | 14,000 |
| Sludge | 0 | 0 | 0 | 0 | 12,000 | 12,000 | 12,000 | 12,000 |
| Total Directs | 73,000 | 57,000 | 69,000 | 53,000 | 69,000 | 69,000 | 58,500 | 58,500 |
| Indirects | | | | | | | | |
| Village | 83,000 | 40,000 | 65,000 | 32,000 | 1,000 | 1,000 | 1,000 | 1,000 |
| Cerro | | | | | | | | |
| Reuse (10 yr) | 0 | 0 | 20,000 | 20,000 | 20,000 | 20,000 | 35,000 | 35,000 |
| Treat. (5 yr) | 0 | 0 | 0 | 0 | 150,000 | 150,000 | 75,000 | 75,000 |
| Total Indirects | 83,000 | 40,000 | 85,000 | 52,000 | 171,000 | 171,000 | 111,000 | 111,000 |
| Total Op. Cost | $156,000 | $97,000 | 154,000 | 105,000 | 240,000 | 240,000 | 169,500 | 169,500 |

Revision 2/23/72

C03391